

REMARKS

The Examiner is thanked for the indication that claims 4-6 are allowed.

Claims 1-3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Honda et al. (U.S. Publication No. 2002/0030672) (hereinafter “Honda”) in view of Suzuki (U.S. Patent No. 6,476,781) (hereinafter “Suzuki”).

At pages 2-4 of the Final Office Action dated February 28, 2008, the Examiner sets forth a detailed “Response to Arguments” section. Applicants have studied these arguments in detail and will now specifically respond to those arguments.

In paragraph 2 at page 2 of the Final Office Action, the Examiner asserts that the error diffusion and dither processing taught by Suzuki is “two-dimensional.” Applicants do not deny this observation. The Examiner alleges that there is no special error or dither processing done in the instant application because the specification does not say anything about “two-dimensional” error diffusion or dither processing. Applicants respectfully disagree with this observation because the two-dimensional processing is inherent in the instant application for at least the following reason. The Applicants’ invention applies error diffusion and dither processing on the pixel data PD1. The pixel data PD1 is two-dimensional because it is prepared from two-dimensional pixel data PD.

At paragraph 2 of page 3 of the Final Office Action, the Examiner asserts that Applicants insist that the amended claim 1 adjusts the subfields on a field-by-field basis, but this limitation is not found in the claims. Applicants respectfully disagree with this observation. The third subparagraph of claim 1 reads “a controller for adjusting, for for each field of the image signal, the number of subfields ...” Thus, Applicants respectfully submit that claim 1 adjusts the

subfields on a field-by-field basis. Even further, the last two lines of the third subparagraph of claim 1 reads “based on the brightness frequency data of the brightness concerned.” Applicants respectfully submit that the brightness frequency data indicates the number of subfields used at a particular brightness for each field. Thus, Applicants respectfully submit that the controller of claim 1 adjusts the subfields based on the brightness frequency data obtained for each field.

The Examiner goes on to assert that “field-by-field” is “pixel-by-pixel.” Applicants respectfully submit that this assertion is a technical misunderstanding for at least the following reasons. Applicants respectfully submit that the “field” is one screen. In general, a television display device creates 60 screens (or 60 images) per second if the electricity is 60 Hz. In other words, one-screen-worth of image is created every 1/60 second. Applicants respectfully submit that this arrangement is commonly understood in the subject art. The pixel is an element that constitutes, together with other pixels, a display device. For example, a display device has 307,200 pixels (a matrix of 640 pixels x 480 pixels). In other words, Applicants respectfully submit that the typical display device 480 display lines and each line contains 640 pixels.

The Examiner alleges that “[a]s explained in the rejection Figure 4 and paragraphs 0047 – 0048 explain that the accumulated frequency data is used in each display line of one field, meaning that the subfield pattern is changed every line in each field.” Applicants respectfully submit that this understanding is correct. However, Applicants respectfully submit that the Examiner’s statement in the following sentence “[t]hus, the subfield patterns will still be changed every field, i.e., field-by-field” is technically incorrect for at least the following reasons.

Applicants note that the typical display device has 307,200 pixels and 480 display lines so that Honda carries out the subfield adjustment 480 times in each field. The Applicants’

invention carries out the subfield adjustment once for each field. Applicants respectfully submit that no one can properly assert that the line-by-line adjustment is equal to the field-by-field adjustment. Applicants note that even if the line-by-line adjustment is accumulated, it is a mere combination (aggregation) of line-by-line adjustment, not the field-by-field adjustment.

The Examiner goes on to assert that field-by-field does not have anything to do with the subfield arrangements being done “two-dimensionally.” Applicants respectfully submit that this assertion is also technically inaccurate because the term “field-by-field” means “screen-by-screen.” Applicants respectfully submit that this is commonly understood by those skilled in the art of display devices.

Claim 1 of the instant application recites that the controller adjusts, for each field of the image signal, the number of subfields. Thus, Applicants respectfully submit that claim 1 in fact includes the limitation that the subfield adjustment is performed two-dimensionally. Applicants respectfully submit that if one has ordinary skill and knowledge in the subject art, he or she will understand this.

The Examiner goes on to assert that even if the claims state that the subfield adjustment is two-dimensional, the combination of references would still teach “two-dimensional” error diffusion and dither processing. Applicants do not deny that Suzuki teaches two-dimensional error diffusion and dither processing. Applicants simply insist, after careful study, that the combination of Honda and Suzuki would not arrive at the combination of features described in independent claim 1 of the instant application for at least the following reasons.

Independent claim 1 describes an advantageous combination of features in which error diffusion and dither processing are applied on the two-dimensional image signal for each field.

In other words, the error diffusion and dither processing is applied on every one-screen-worth of image data, i.e., field-by-field. Applicants respectfully submit that the two-dimensional processing must be performed for each field because the target to be processed is each field of image data. Each field is processed as a whole in the combination described in independent claim 1.

On the other hand, Applicants respectfully submit that Honda applies the subfield adjustment line by line (or some lines by lines) so that Honda applies the subfield adjustment 480 times (or at least twice) for each field, if the screen has 480 display lines. Applicants respectfully submit that if the two-dimensional error diffusion and dither processing is applied on such a field (or such 480 display lines), a single error diffusion and dither processing would not work because 480 (or at least two) different types of adjustment are already made. In other words, Applicants respectfully submit that 480 (or at least two) types of error diffusion and dither processing should be carried out because Honda has 480 (or at least two) different types of display lines in each screen.

Applicants respectfully submit that in the arrangement disclosed in Honda, one screen (or 480 lines) cannot be treated as a whole. One screen can be treated as a whole in the Applicants' invention because the image data is always treated field by field (i.e., screen by screen) in the Applicants' invention.

At page 4, paragraph 2 of the Final Office Action, the Examiner alleges that the subfield adjustment made by Honda is two-dimensional. Applicants do not deny this observation. It is true that Honda carries out the subfield adjustment every some lines-by-lines. However, Applicants note that it should be remembered that the error diffusion and dither processing must

be applied on each such group of display lines. Thus, Honda requires the error diffusion and dither processing at least twice for each field. If the two-dimensional processing of Suzuki is carried out with the subfield adjustment of Honda, then appropriate processing cannot be expected because the two-dimensional processing of Suzuki is performed once in spite of a fact that the two-dimensional processing should be performed at least twice.

MPEP § 2143.01 VI specifically directs that “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).” Similarly, MPEP § 2143.01 V specifically directs that “[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).” The applied references are not combinable in the manner proposed in the Office Action because they are directed to very different technologies not amenable to combination. As described previously, if the two-dimensional processing of Suzuki is carried out with the subfield adjustment of Honda, then appropriate processing cannot be expected because the two-dimensional processing of Suzuki is performed once in spite of a fact that the two-dimensional processing should be performed at least twice.

Accordingly, the two-dimensional processing disclosure of Suzuki would clearly teach away from suggesting to one having ordinary skill in the art to modify a subfield adjustment as in Honda. The specific arrangement described in the combination of features of independent claim 1 of the instant application would thus only be obtained though hindsight after reviewing

the instant application. See KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (2007) at 1395, citing United States v. Adams, 383 U.S. 39, 50-52 for the proposition that “[w]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.”

Claim 1 has been amended to differently describe embodiments of the disclosure of the instant application in a manner consistent with the foregoing remarks. To the extent that these rejections might be deemed to still apply to the claims as newly-amended, they are respectfully traversed for at least the foregoing reasons. For at least these reasons, as well as those set forth in the Remarks of the previous Amendment, Applicants respectfully submit that all claims are allowable over this combination of references.

Accordingly, Applicants respectfully assert that the rejections under 35 U.S.C. § 103(a) should be withdrawn because Honda and Suzuki, whether taken separately or combined, do not teach or suggest each feature of independent claim 1 of the instant application. As pointed out by MPEP § 2143.03, “[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.’ In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).”

Furthermore, Applicants respectfully assert that dependent claims 2-3 are allowable at least because of their dependence from claim 1, and the reasons set forth above. The remaining claims 4-6 have been indicated as allowed by the Examiner.

CONCLUSION

In view of the foregoing discussion, Applicants respectfully request the entry of the amendments to place the application in clear condition for allowance or, in the alternative, in

better form for appeal. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution. A favorable action is awaited.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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